



## SAN BERNARDINO MICROWAVE SOCIETY, Incorporated

FOUNDED IN 1968

A NON-PROFIT AMATEUR TECHNICAL ORGANIZATION DEDICATED  
TO THE ADVANCEMENT OF COMMUNICATIONS ABOVE 1000 MC.

# W6IFE Newsletter

## September 2003 Edition

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At the **4 September** 2003 meeting of the SBMS Chuck, WA6EXV will talk about his DSP-10 2 meter transceiver that appeared in the September through November 1999 issues of QST and there will be planning for the second half of the contest. The SBMS meets at the American Legion Hall 1024 Main Street (south of the 91 freeway) in Corona, CA at 1900 hours local time on the first Thursday of each month. Check out the SBMS web site at <http://www.ham-radio.com/sbms/>.

SBMS will be having an interest table at the ARRL Southwestern Division Convention Sept 5-7, 2003 in Long Beach. Dave, WA6CGR will be one of the speakers during the convention. Dick Bremer, WB6DNX, 714-529-2800, rabremer@sbcglobal.net will be a point of contact.

**Last Meeting-** visitors were John, KD6IOX from LaVerne; Mike, WA6SVT of Crestline (now a member). There was lots of discussion on the upcoming 10 GHz contest and where everyone was planning to go and frequencies to use. One point being planned was to operate from the radio room on the Queen Mary ship. Both Chuck, WA6EXV and Pat, N6RMJ had been in hospital during the past week and are doing well. A sheet was passed around to indicate topics wished for at the up coming meetings. Kerry, N6IZW, Ed W6OYJ, and company did a SUPER job providing the equipment and running the Tune Up Party. 27 people present.

## Scheduling:

13-15 Sep VHF QSO Party

20-21 Sep 10 GHZ and Up contest second half

2 October TBD

6 November TBD

4 December TBD

## "Wants and Gots" for sale

Want WR-42 waveguide relay Dave WA6CGR 909-318-5154.

Want waveguide relay for 24 GHz, WR-90 to WR-75 adapter, 18-20 inches of WR-90 flexguide, 2 inch piece of WR-90 with flanges- Miguel W6YLZ 818-349-8525

Want- manual for Tek 491 spectrum analyzer, free HP-626 10 GHz generator- Ken W6DTA 818-848-9059

Want Teletype(TM) Machine - Model 14, 15, 19 vintage. Dick K6HIJ 760-253-2477

**Activity** reported at the 7 August SBMS meeting Dick, WB6DNX has an HP3801 GPS based freq ref on line; Glenn KE6HPZ has 2 to 10 GHz rigs and was at the tune up party; Larry, K6HLH went to the tune up and has rigs 1.2, 2, 3 and 10 GHZ and has a DSP-10 on two meters; Jeff, KN6VR has towers up; Dick, K6HIJ has HP3801 working and building 24 and 47 GHz filters; Jerry, N7EME has the 1152 MHz oscillator board done but it has bugs; Dave, WA6CGR was at the tune up and did work on several rigs, and has rubidium tied to 10 GHz rig; Chuck, N6EQ made some 10 GHz contacts; Jack, N6XQ looking for loan rig for Ramon during contest; Paul, N6DN will be a UHF rover with radios 220 to 10 GHz; Wayne, KH6WZ went to the tune up; Bill, KG6CNL has DB6NT rig in Pcom box; Mike, W6YLZ went to the tune up and found the 27 inch dish better than the 4 ft offset dish; Kerry, N6IZW ran the equipment for the tune up and has an article on 47 GHz for the Update Conference; Bill, WA6QYR built a 23 element 1296 MHz loop yagi, a 1296 MHz weak signal source and tuned up the Qualcomm 1296 rig; Ken, W6DTA built a loaner 10 GHz rig; Gary, KKVC did some 5 GHz ATV; Mike WA6SVT was our visitor; Mel, WA6JBD did some TWT work and modified a satellite LNA.

Hello Microwavers, for those who attended the July 26 Picnic and Tune-up Party at Fairview Park in Costa Mesa CA, the results of the MDS and EIRP Measurements are now posted on the SBMS Web Pages.

Anyone else is free to peek also. Go to the URL <http://www.ham-radio.com/sbms/sd/>

and then select the "MDS/ERP Event Results" You will need Adobe Acrobat Reader to download and view the results. For San Diegans, the results of the July 21 Workshop at N6IZW's home QTH are also posted, along with an explanation of the test range setup developed by Kerry Banke, N6IZW.

73s from Ed Munn, W6OYJ 858-453-4563

## 10 GHz Contest comments-

I've posted some pictures from the first weekend of the 10 GHz and up contest at <http://infosite.com/gallery/microwave>

I had the pleasure of roving on Saturday with Doug K6JEY, Dennis WA6NIA, Scott K0SMC, and Gerry, N7EME. I started out my morning with a bang as my rear passenger side tire blew out loudly on southbound 405. Putting on the spare made me late in meeting up at Doug's house, so I decided to drive up to Signal Hill, their second scheduled stop. Sure enough I met up with them right away as they had skipped their first stop in

Huntington Beach. We worked Mexico from DM03WT as well as a lot of other stations in the area. Gerry and Scott had severe rig problems, relegating Scott to NBFM for the day, and Gerry taking a quick trip to visit Dr. WA6CGR on the other side of the hill.

We left Signal Hill in the early afternoon, took a lunch break and stopped by to pick up some cables at Doug's impressive QTH/comm-center. We then took off for Frazier Peak, which was a tough journey for my poor 15-year-old pickup. The bed was full of tripods transverters and batteries, and the 102 degrees F going uphill caused the engine to want to overheat. So I was driving up the grade, windows down, 55 mph, and the heater on full blast to help cool off the engine. Everyone else in the group was amazingly patient and I have to thank them again!!

Eventually we reached the peak of Frazier Mountain and setup shop. Propagation was bizarre at DM04MS and I had no luck reaching Mexico, though Dennis made it with relative ease. I left the group Saturday night and drove home to Redondo Beach where I operated on Sunday.

On Sunday I learned that my QTH is a reasonable location for microwaving, but not ideal. I made probably 70% of the attempted contacts, with the remainder being in the noise or inaudible. The cool breeze made up for the lackluster location however. I was shocked by the huge signals coming from Secret Site 51, as were others. Overall I had a good weekend, though I didn't work Mexico as much as I should have. Thanks for all the QSOs. My results: 50 QSOs (47 on X band, 3 on K), 36 unique call signs, 741 km best DX, -Tony KC6QHP

I did it again. I am going to have to get rid of that cheap GPS. Saturday I went out with Roman, XE2ED, and operated from DM12kh in Tijuana. Then Sunday I went up to Black mountain in San Diego and fired up the GPS and misread the grid as DM12kh when in actuality it was DM12kx. The h and x look almost identical on the GPS readout. So please correct the Sunday contact with N6XQ to DM12kx from DM12kh. It is ironical that I actually did operate from DM12kh on Saturday in Tijuana.

Sorry for the mistake. 73 Jack N6XQ

Hi Bill, I would like to thank all the SBMS members that worked me on Frazier both days and to say thanks for the nice Southern welcome that I received from the SBMS folks that came up and visited me there! I felt really welcome, even though I am from the "rival" Northern CA 50MHz and Up group! I hope we will continue to cooperate and make these events more fun and worthwhile in the future.

Interesting propagation effects noted on the signals from Mexico: On Sunday, the JEY group set up their stations on the south end of the hill, about 200 yards from where I was set up at the top of the hill. When the XE2 guys were copyable by them, they were often in the noise at the top of the hill, and vice versa - the JEY group and I worked this phenomenon to our best advantage. I also found the best signal from XE2 arrive in a time variant manner in azimuth and elevation. The variations seemed cyclical with a period of about 30 or 40 seconds. I could almost convince myself that the best RX path formed a circle in azimuth and elevation (about 2 or 3 degrees in diameter). Strange! More study is called for...

Cheers es 73, Dave Fifield, AD6A (50MHz and Up Group President, 2003)

Bill - I'll let Mike provide the Mexico details but I did want to say a BIG thank you to the whole SBMS club for the invitation to operate with your group. I had a great time in Mexico with a great group of guys who I can't thank enough: Mike (ylz), Ken (dta), Jerry (dyd) and Greg (wks). It was a great adventure, a great experience and a great group to do it with. Thanks again! - Gary ad6fp

KH6WZ Report on the First Weekend

A few of you noticed that I was MIA (not NIA) for the first weekend. Thanks &mdash; it is nice to be noticed (??) sometimes. Yup, I wasn't operating - but we (Bill KG6CNL, rig still in progress) and I followed the WA6CGR group up to Highway 2, where Bill's Blazer developed a radiator leak. Although we really wanted to see "Area 51" we decided a leaky cooler was a bad thing to have while driving to places unknown . . . I have

frequency control and RF out problems. Pat N6RMJ and I decided that it was not only the "characteristic DEMI drift/stability," but strongly suspect the IF radio as well. Power out is a measly 2mW, which should be more like 10, according to the DEMI spec sheet - they are saying 20mW. Dave WA6CGR measured it at his lab the week before the contest and even Dave got about 2mW. Something is amiss in the transmit chain. Drift seems to be getting worse - it used to be "predictable" 20 to 25kc higher, but we found it going to as much as 50. I don't know much about crystal aging - but this cannot be right . . . My first thought is battery or supply voltage - but measuring the battery output as the rig is keyed showed only a volt or 2 of droop, and the DEMI rig is supposed to work on 8VDC. Oh - maybe it IS the IF radio (TR-751A), rated for 13.8V nominal. Anyway - my new FT-817 is here! (I've wanted one for a while - this seemed to be a good excuse to get one.) Receive, however - is grand. I was able to hear all the W6YLZ group XE operators - but was that because they all were exceptionally loud? They were Q5/S9-plus 20 and 30 dB's on the TR-751A S-meter. This is why I was so puzzled about why I was not able to get out beyond our circle at Signal Hill. So, re-vamping is in progress. I called Steve over at DEMI, and he suspects "a resistor R4 should not be there [on the Transverter Control (TC) board]. If it is, you should short it out. It could be bad capacitors at C1 and C3." Hmmmm. Assembly and testing errors at the factory? This is not good, especially since I bought the "fully-built" version. I guess testing is not part of their process.

Despite all this - I enjoyed going to the locations with Pat and Dave, watching them operate, and learning "etiquette" on the bands. No where near like 20M SSB contesting....but exciting nonetheless.

Amazingly Dave fixed at least 5 radios on Saturday, and even made that "Outer Limits sound effect" go away. He is truly a wizard! I have 4 weeks so - I WILL be on for the next test! Maybe a better goal would be to get this going before the SW Convention/Queen Mary, so I can practice operating.

One more thing - Pat has Lazarus - I figured out a name for my rig. I will call him MORPHEUS, since it seems to change all the time. Or maybe KENNY, as in "Kenny died." (South Park reference)

UPDATE: Yesterday (8/19), I called DEMI, and Steve was very pleasant over the phone. He suggested that a 220-ohm resistor at R4 on the Transmit Control (TC) board should not be there. Just short it out. The other suspects are bad (open) caps at C1 and/or C3.

With regard to the frequency issue, an adjustment to the variable cap C2 on the local oscillator board should bring the frequency closer, since the crystal is indeed aging.

So, last night, I opened the unit up, and took a look. Sure enough, that 220-ohm resistor was in there. The resistor popped out easily, and I installed a shorting wire in there. I also changed the T/R scheme from a plus 5V trigger to ground to transmit. Now I just have to verify the power output, and interface the transverter to my new FT-817 IF radio . . . &endash;Wayne KH6WZ

Bill, WA6QYR traveled with Dick, WB6DNX on Saturday. Bill's liaison radio didn't do the 20 KHz shift so Dick helped out. For the weekend Bill had 6 stops roving and 84 contacts with 30 call signs.

Other stuff on the web.

Has anyone else noticed that there's a beacon on 10368.330 or thereabouts identifying itself as AE6AK/b in Pine Cove? It has several cw messages, including qsl information. Anyone know who this is? Never heard the call before, and I just discovered the beacon quite by accident. It's putting out a whale of a signal here in

Claremont. Mel, WA6JBD

The interesting and current talk about rain scatter on the NW reflector made me think of that fun contest day awhile back when a band of clouds shoe stringed on the San Bernardino Mountains themselves opened an X band pipeline from DM08ok, Corey Pk, NV into Southern California. I recall working a number of San Diego area stations in the 400-mile range from Corey, most everyone running low power, and experiences the classic broad azimuth and elevation play on the signal which was also quite watery. The next day the enhancement was

gone and it took TWTs and time on both ends to make contact on direct path only. Anyone else on here remember that weekend? How far from DM08ok were you? Frank WB6CWN

Al, There's been more talk about microwave rain scatter contacts with the new records. I'd like to submit the following contact for consideration in that category:

X band rain cloud scatter contact 9-6-96 10.368.100 SSB

W6OYJ and W6DXJ on Mt San Miguel CA 32:41.775 116:56.194 DM12mq

WB6CWN on Corey Peak, NV 118:46.936 38:26.880 DM08pk

660km, 410mi; distance between stations (per Topo USA 3.0)

"Cloud scatter" is noted on the QSL card in Ed Munn, W6OYJ's possession from the contact. These were the longest contacts of an exciting day when a late summer storm parked in the San Bernardino Mountain area, roughly half-way between both stations' and virtually on the direct path, provided for a number of 300-400 mi contacts on the first day of the second microwave contest weekend. Many of the Southern California stations were running low power and all of those contacts are documented in the contest logs and

memories of the participants. Signals on both ends had the characteristic watery tone and broad beam headings. During the event N6CA on Palos Verdes and other stations in the Los Angeles reported the same enhancement and watery characteristics pointing significantly off direct heading and into the moisture.

The enhancement faded in the late after/early evening and did not return the next day.

Everyone was having a fun summer that year and even longer DX was being worked, so no one reported this one at the time.

Ed's been active on microwaves since right after the war. Hopefully he could be recognized for this early well-documented rain cloud scatter contact.

Thanks, Frank WB6CWN

Trip to DM98, DM97 and DM96 8-4-03 and 8-5-03

On Aug 4, 2003 I traveled to Weskan Kansas for a shot from DM98AV. I left home at 0845 hrs and arrived on site about 1345. The route was I70, then US 40 to Limon and on to Kit Carson and Cheyenne Wells. Crossing into Kansas, the first town? is Weskan KS. As I traveled, there was a large thunderstorm to the south and east. It had moved through the area of Weskan and it had rained hard. The roads in the backcountry northwest of town were like a mud pie!! I was driving the white truck (4X2), so I had to be really careful of the roads. I did not want to get stuck. At one point, I started down a road and found that I was sinking into the mud about 2 inches. I very carefully backed out of that road!! With the 6' dish, I have a very limited field of fire. I need to have the back of the truck just about on boresight. On the muddy roads, there was no good place to do this. I took a road marked 'dead end' which ended in a farmer's front yard. There was a pair of wheel tracks leading into a field. These tracks were grassy and the soil was firm underneath. I was able to pull off into this area and aim the truck at about 300 deg. T. I set up the system. During operation, the farmer came by, waved, but did not stop.

Liaison on 433.1 was good. At 1422 I made contact with Bill (K0RZ) in Louisville CO. After the CW exchange on 902 MHz, I listened for Don (N0UGY) and heard a CW carrier from him. He was not able to hear me. At that point something went wrong. I was unable to hear or be heard on 902. The power meter indicated that I was transmitting, but no one heard me. Before the trip I upgraded the tri-band rig to include a plug-in for 902 MHz. It converts the 2302 output from the tri-band rig to 902 using a 1400 MHz offset generated in the plug-in. I thought that the brick generating the 1400 MHz might have broken lock. (I had no lock indicator on the brick.) We decided that we should go on the 2304. 2304 MHz was no better than 902. I made power, but no one heard me

and I could not hear anything. I figured that the 2160 brick in the tri-band rig must be out of lock. The temperature was very hot and it was humid after the rain. I was wringing wet after setting up the system.

I took the tri-band rig out of the rack and re-adjusted the cavity in the 2160 brick. It was in fact out of lock. I left the cover off the rig to give it a little more air. No further lock problems were experienced. To remove the rig, I had to lower the 433.1 antenna and place the pole on the ground. That made it about 4 feet lower than when it is in the truck. Bill noted that my 433.1 signal was down. Upon replacing the mast in the truck, the signal was back up. Even in a mobile setup, height is important!!

Now 2304 was working! At 1543 we made the contact with no problems. The big dish is great for sending and receiving signals, but it is really slow to set up the TWT and other systems required for operation. I am getting better at the setup, but it is still slow.

We moved on to 5760 MHz. At 1604 we made contact. It was a pleasant surprise, considering all the problems we had in the past on this band. My signal was Q5S3 to Bill and we completed the CW contact with ease.

The final band was 10 GHz. Now the big dish really has some gain, but the pointing is more critical. The beam width is about 1.5 degrees. Signals were fluttery, but a CW contact was made at 1639. My signals were Q5S1 to Bill.

I put the system into travel mode and headed on down the road. The sun had dried the roads and it was no problem getting back to US40. I turned south on KS27. It is a good road and I arrived at Syracuse KS for the night. It is not much of a place, but it had one motel which is the Syracuse Inn. It is clean and OK, but not outstanding. The weather was still hot and muggy. At 2030 it was still 89 degrees. (I called my daughter, Lori, on the cell phone. It is a roving area!! Bah!!) After dinner, I took a drive south on KS27. There is a good dirt road about 2 miles south of town which heads west along the rise in the land south of the Arkansas River. I figured this would be a good place to start the next day.

The next day, 8-5-03, I went west on the dirt road. About 5 miles away, I could see a commercial radio tower with 6 large 'sugar scoop' antennae. I went to the tower and found enough area to set up with the truck pointing at about 330 degrees T. The GPS said the grid was DM97BW. I was on the air on 433.1 at 0700 hrs. Liaison was good. At 0711 we had a contact. My signals were Q5S3 and it was easy CW. I set up for 2304 and at 0742 we made the contact. Good CW with a Q5S1 report. At 0751 we made a 5760 contact. Signals were good and my report was Q5S2. It was nice to make a 5760 contact with little effort. In the past, this band has been a problem. The final band was 10ghz. Signals were Q5S2 and easy CW. By 0900 I was packed up and ready to travel. We decided to try to go to DM96. That would be about 75 miles on down KS27.

The road, KS27, is good and the speed limit is 65mph. I went south to Elkhart KS and crossed over into Oklahoma. I found numerous roads among the oil wells southwest of Elkhart. The land is very flat. There are a few small hills??, but no real high spots. I drove around and saw what looked like a good spot, but there were no roads to it. I went a little further, and found a road to a non-operating oil well. I figured there must be an area where I could point the truck in the right direction by the pump. The area was flat and I was able to point the truck at about 340 degrees T. The grid was DM96AX.

I was on the air at 1100 and we had a Q5S3 CW contact on 902 by 1119 hrs. We moved to 2304. Here the signals were not good. With many repeats we managed a contact with a Q3S1 report. We tried 5760. Bill could just hear me at the noise and I heard him only occasionally, just in the noise. No contact was possible on 5760 MHz. We wondered it was worth trying x-band. We decided to give it a try and to our pleasant surprise, we could both hear signals. The level was at the noise, but there was QSB and at one point I got a burst for about 5 seconds just as Bill was sending calls and grid. No problem!! With many repeats and the headphones, we managed a contact at 1340 hrs. At times the signal peaked Q5S2!! Again, without the big dish, this probably would not have worked.

I went back to town to get food and fuel. I drove home with a supper stop in Kit Carson. I arrived home just after 2105 hrs. The distance to the site in OK is 410 road miles. The LOS distance is about 276 miles from Louisville CO. Phil, W6HCC

73's Bill



Bob, W6SYA on a hill in Diamond Bar with his 10 GHz rig.

The San Bernardino Microwave Society is a technical amateur radio club affiliated with the ARRL having a membership of over 90 amateurs from Hawaii and Alaska to the east coast and beyond. Dues are \$15 per year, which includes a badge and monthly newsletter. Your mail label indicates your call followed by when your dues are due. Dues can be sent to the treasurer as listed under the banner on the front page. If you have material you would like in the newsletter please send it to Bill WA6QYR at 247 Rebel Road Ridgecrest, CA 93555, [bburns@ridgecrest.ca.us](mailto:bburns@ridgecrest.ca.us), or phone 760-375-8566. The newsletter is generated about the 15th of the month and put into the mail at least the week prior to the meeting. This is your newsletter. SBMS Newsletter material can be copied as long as SBMS is identified as source.

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